Rebuilding the foundations: statistical training in the 21st century

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Statistical training often focuses on methods. These methods are typically exemplified on small and dated datasets. Students come away with ability in application of methods but not necessarily in the acquisition, handling and visualization of data. In contrast, data science or data analytics training often undervalues the role of statistical models. Students come away with an ability to handle data but a restricted view on what to do with it and how to examine it critically. An important factor that lies behind the divergent skill sets is computing and programming ability. Based on my experience teaching statistics to students in the sciences and social sciences, and helping to establish a Masters in Business Data Science program, I will argue that we need to radically change the foundational aspects of statistical training. If our students are to succeed in the data-rich world of the 21st century, they will need to be trained in query languages and programming as much as in statistical methods..

Keywords: data science; statistics teaching; statistical modelling; statistical programming.